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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,192	06/30/2005	Pascal Bisson	4590-431	7753
33308	7590	01/30/2008	EXAMINER	
LOWE HAUPTMAN & BERNER, LLP 1700 DIAGONAL ROAD, SUITE 300 ALEXANDRIA, VA 22314				SALAZAR, LUIS A
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,192	BISSON ET AL.	
	Examiner	Art Unit	
	Annette Keller	4192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 06/30/2005.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-12 is/are rejected.
 7) Claim(s) 1-7, 12 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1.) Certified copies of the priority documents have been received.
 2.) Certified copies of the priority documents have been received in Application No. _____.
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>06/30/2005 and 06/20/2006</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A. 37 C.F.R. 1.72 – Objections to the Title of the Invention

1. The title of the invention is not optimally descriptive of the claimed invention. Upon a review prior art and the French application, the following comments should be noted.

- a. The term “Applied Field” that appears in the title, associated with the term “application concerned” and “applied field concerned” that appears in the claims and elsewhere, are vague and undefined in the Specification. It is suggested that “domain specific to an application” is a better translation for “Un Domaine D’Application”.
- b. “Reconnaissance vocale”, literally translates to “voice recognition” and not “vocal recognition”. But “voice recognition” isn’t synonymous with "speech recognition".
“Voice recognition” systems enable individuals to be uniquely identified by their voices.
“Speech recognition” systems enable the content of their speech to be recognized.
Applicants’ claims and embodiments are directed to speech recognition applications. It is suggested that “vocal recognition” be changed to “speech recognition” in the title and elsewhere in the Application, in translation of “reconnaissance vocale”.
- c. The term "automatic" in the title does not reflect the methods herein, which are semi-automatic, as revision of the grammar is performed with the input means.
- d. The title “Automatic production of vocal recognition in interfaces for an applied field” is incomprehensible. "Recognition" is not that which can be produced, either manually or automatically. It is suggested that the word "in" be deleted from the title.

B. 37 C.F.R. 1.72 – Objections to the Abstract

2. The abstract of the disclosure is objected to because of legalistic claim terms “comprising” and “means”. The abstract should not be a condensation of claim language into one paragraph. The formal legal phrases often used in patent claims, such as "means" and "said," should be avoided. The use of legalistic claim terminology is inconsistent with the purpose of an abstract. MPEP § 608.01(b)(C).
3. Applicant is reminded of the proper language and format for an abstract of the disclosure.
 - a. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words.
 - b. The language should be clear and concise and should not repeat information given in the title. The wording should be informational and factual, using narrative language.
4. Correction is required. See MPEP § 608.01(b) for guidelines.

C. Objections to Claims

5. Claims 1, 3 and 4 are objected to because of the following informalities: The use of the language “wherein...that” is improper use of English. There is no need for the “that” associated with the use of “wherein” unless the use of the word “that” arises from other context. For example, it is suggested that a phrase “wherein that...” should be corrected to read “wherein...” Appropriate correction is required. For the purposes of this Office Action, Examiner interprets claims as if so corrected.

6. Applicant is advised that should claim 1 be found allowable, claim 5 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, it is proper after

allowing one claim to object to the other as being a substantial duplicate of the allowed claim.

See MPEP § 706.03(k).

7. Claims 6 and 7 are objected to because of the following informalities: The use of the language “wherein further comprising” is improper use of English. There is no need for the “wherein” associated with the use of “further” in the context of these claims. For example, it is suggested that a phrase “wherein further comprising...” should be corrected to read “further comprising...” Appropriate correction is required. For the purposes of this Office Action, Examiner interprets claims as if so corrected.

8. Claim 12 is objected to because of the following informalities: The use of the language “wherein it further comprising” is improper use of English. There is no need for the “wherein it” associated with the use of “further” in the context of these claims. For example, it is suggested that a phrase “wherein it further comprising...” should be corrected to read “further comprising...” Appropriate correction is required. For the purposes of this Office Action, Examiner interprets the claims as if so corrected.

D. 35 USC § 112 Paragraph 2 – Claim Rejections

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-4 and 8-11 are rejected under 35 U.S.C. 112, 2nd paragraph are rejected as being indefinite and failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. Claim 1 includes "producing a set of generic grammar rules representative of a class of applications exemplifying different generic grammar rules whose constraints are satisfied producing grammar for the applied field concerned from the exemplified generic grammar and from [[the]] a conceptual model". This is a series of clauses, and it is indeterminate what subjects serve as antecedent bases for clauses that follow.
- b. In claim 1 where there is a string of multiple objects that appear in series, that "concerned" is indefinite in that it's indeterminate what object is the target of the concern.
- c. It is indeterminate if (1) the "set of generic grammar rules" or (2) the "class of applications" is the antecedent basis for "exemplifying different generic grammar rules".
- d. It is indeterminate whether "constraints are satisfied" by (1) the "set of generic grammar rules", (2) "a class of applications" or (3) the "different generic grammar rules".
- e. "... exemplifying different generic grammar rules whose constraints are satisfied producing grammar for the applied field concerned from the exemplified generic grammar ..." is indeterminate. There is no adposition word or punctuation between the words "satisfied" and "producing". Applicants don't indicate how constraint satisfaction relates to that which follows. Is it the "set of generic grammar rules", the "class of applications", or "different generic grammar rules" whose constraints are satisfied?
- f. The last limitations of claim 1 lack definite antecedent basis. There is insufficient antecedent bases for "the exemplified generic grammar" and "[[the]] a conceptual model". The term "the exemplified generic grammar" could have antecedent basis in (1) "set of generic grammar rules", (2) "exemplifying different generic grammar rules", or (3) "grammar for the applied field".

- g. There is no antecedent basis for "[[the]] a conceptual model". Moreover, the phrase "[[the]] a" is improper language in any context. It is assumed [[the]] is deleted.
- h. The term "voice recognition" isn't properly applied to the processes alluded to in the claims, which are directed to speech recognition applications.
 - i. "Voice recognition" enables the voices of individuals to be uniquely identified. "Speech recognition" enables the content of the speech to be processed. Applicants' claims and embodiments are directed to applications that recognize the content of the speech and not those that recognize the speaker.
 - ii. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term is indefinite because the specification does not clearly redefine the term "voice recognition" as meaning "speech recognition".

11. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, for the aforementioned reasons. Claims 2, 3 and 4 depend from claim 1, and incorporate its rejected limitations. Claims 8 and 9 depend on claim 2, incorporating its rejected limitations. Claims 10 and 11 depend on claims 3 and 4, respectively, incorporating their rejected limitations.

12. Claims 2, 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as their invention.

- a. Claim 2 includes limitations "the data input", "the terms", and "the application concerned". There is insufficient antecedent basis for the use of these terms.
- b. There is insufficient antecedent basis for "the data input is revised" is definite, because there is no prior reference to the keeping of the conceptual model. There is no prior appearance of the word "data" in the claim.
- c. The phrase "the terms" lacks sufficient antecedent basis. There is no prior appearance of the word "terms".
- d. The phrase "the application concerned" is indefinite in two ways. Firstly it has no particular target of the adverb "concerned" because the use of the word "concerned" in this context is atypical use of English. Secondly, it's indeterminate whether "the application" could refer to "a class of applications" or "an applied field", if not something else. There is insufficient antecedent basis for the use of this term.
- e. Claims 8 and 9 are indefinite in that they depend from claim 2, incorporating its rejected limitations.

13. Claims 3 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as their invention.

- a. "The data input is revised" lack sufficient antecedent basis. There is no prior appearance of the word "data" in the claim.

- b. The use of the edit notation in the phrase “[[[(4)]]]” renders the claim indefinite.
“[[“ and “]]” are revision-and-editing symbols. It is assumed that their content is deleted.
- c. Claim 10 is rejected as indefinite in that it depends from claim 3, incorporating its rejected limitations.

14. Claims 4 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as their invention.

- a. Claim 4 is rejected as indefinite in the insufficient antecedent basis for the phrase “when generating the grammar”. Claim 1, from which claim 4 depends, didn't specify generating a grammar, or a particular grammar.
- b. Claim 11 is indefinite in that it depends from claim 4, incorporating the rejected limitations.

15. Claims 5-7 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as their invention.

- a. Claim 5 is rejected as being indefinite in the lack of antecedent basis for “the grammar”. It is indeterminate what is meant by the language “providing a generic model.” Additionally, there is lack of support in Applicants' specification for definitions of a means of “executing” a grammar.
- b. Claim 5 is indefinite in that the use of the word “concerned” to show a technical relationship is atypical use of English and is indefinite as used in claim 5. There is nothing in the claim that would indicate that there is more than one applied field of

interest. If there were more than one applied field of interest, there is nothing in the claim to indicate which claim element is associated with the concern in the particular applied field for which the associated grammar is executed.

c. Claims 6 and 7 are indefinite in that they depend from claim 5, incorporating its rejected limitations. Claim 12 is indefinite in that it depends from claim 6, incorporating its rejected limitations.

16. Where claims lack antecedent basis, Examiner doesn't suggest rewordings. However, for the purposes of this Office Action, Examiner will infer meanings of the claim limitations, as indicated by mapping to the prior art and as enclosed in parentheses.

E. 35 USC § 112 Paragraph 4 – Claim Rejection

17. 35 U.S.C. § states:

“Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all of the limitations of the claim to which it refers.

18. Claim 11 is rejected under 35 U.S.C. § 112 Paragraph 4 as being in improper dependent form. Claim 11 depends from claim 4 but fails to meet the statutory requirement of further limiting the subject matter of claim 4.

F. Claim Rejections - 35 USC § 102

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20. Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Ganesh N. Ramaswamy, et al. USPN 6188976 (hereinafter “Ramaswamy, et al”).

21. As per claim 1, Ramaswamy, et al, teach a method for production of voice recognition interfaces for an applied field (domain specific to an application), comprising the steps of: inputting a conceptual model of the applied voice interface field (seed corpus containing linguistic units relevant to the domain) (Fig. 1, 15), producing a set of generic grammar rules representative of a class of applications (relevant corpus) (Fig. 1, 40), exemplifying different generic grammar rules (external corpus) (Fig. 1, 20) whose constraints are satisfied (linguistic units which have a sufficient degree of relevance) (Abstract), producing grammar for the applied field concerned (reference language model) (Fig. 1, 80) from the exemplified generic grammar (relevant corpus) and from a conceptual model (seed corpus).

22. As per claim 3, Ramaswamy, et al, teach the method of claim 1 and that the data input is revised (Fig. 3, 80, 20, 60) and new terms are added (iterative corpus extraction) to enrich the grammar of the applied field (Fig. 3, 40) (see also “Detailed Description”, Col. 4, Lines 8-54).

23. As per claim 6, Ramaswamy, et al, teach the method of claim 1 and a derivation means (Fig. 1, 50).

24. As per claim 6, Ramaswamy, et al, teach the method of claim 1 and a revision means (Fig. 1, 60).

G. 35 USC § 103 – Claim Rejections

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

26. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramaswamy, et al, as applied to claim 1 above and further in view of Siu, Kai-Chung and Meng, Helen M. "Semiautomatic acquisition of domain-specific semantic structures", EUROSPEECH '99 (hereinafter "Meng, et al").

a. Ramaswamy, et al, teach the method of claim 1 on which claim 2 depends.

Ramaswamy, et al, don't teach that data input is revised and the terms contrary to the semantics of the application concerned are corrected.

b. Meng, et al, teach post-processing by hand-editing with a correction procedure (pruning irrelevant nonterminals and terminals). (VII. "Postprocessing").

c. It would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Meng, et al, into the teachings of Ramaswamy, et al, since Ramaswamy, et al, teaches the method for building language models specific to a domain, as does Meng, et al, and since Meng, et al, motivates the use of revision in the semiautomatic process whereby the developer corrects terms, by explaining that after the revision steps "[t]he resultant grammar should reflect the ontology of the domain." (Page 2 paragraph 4).

27. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramaswamy, et al, as applied to claim 1 above and further in view of Monaco, Peter C., USPN 6434523 (hereinafter “Monaco”).

- a. Ramaswamy, et al, teach an apparatus and method for building domain-specific language models for speech applications. Ramaswamy, et al, do not teach that in doing so, the quality of the reference language model is determined in a user session in which the rules that were applied when generating the grammar (reference language model) specific to the applied field (application domain) are explained.
- b. Monaco teaches a visual grammar editing tool in which explanations (grammar specification language objects) are produced (Col. 6 lines 16-21), explaining the rules applied when generating the grammar specific to the applied field (Col. 3 lines 61-66).
- c. It would have been obvious to one of ordinary skill in the art to implement the teachings of Monaco into the teachings of Ramaswamy, et al, since Ramaswamy, et al, suggest the benefits of determining the quality of the reference language model (Fig. 2, S6) and since Monaco describes adding a graphical hand review and editing of grammars ((Col. 3, lines 66-67 and Col. 4 lines 1-2) to the development of speech recognition software (Col. 4, lines 16-18) and provides the motivation to do so (Col. 1 lines 59-62). (“Defining the set of grammars for a particular IVR application can be time-consuming and difficult. Accordingly, it is desirable to have a tool which facilitates the creation and editing of speech recognition grammars.”).

28. Claims 7, 12 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramaswamy, et al, as applied to claims 5, 6 and 3, respectively, above and further in view of Monaco, Peter C., USPN 6434523 (hereinafter “Monaco”).

a. Ramaswamy, et al, teach an apparatus and method for building domain-specific language models for speech applications. Ramaswamy, et al, do not teach that in doing so, the quality of the reference language model is determined in a user session in which the rules that were applied when generating the grammar (reference language model) specific to the applied field (application domain) are explained.

b. Monaco teaches a visual grammar editing tool in which explanations (grammar specification language objects) are produced (Col. 6 lines 16-21), explaining the rules applied when generating the grammar specific to the applied field (Col. 3 lines 61-66).

c. It would have been obvious to one of ordinary skill in the art to implement the teachings of Monaco into the teachings of Ramaswamy, et al, since Ramaswamy, et al, suggest the benefits of determining the quality of the reference language model (Fig. 2, S6) and since Monaco describes adding a graphical hand review and editing of grammars ((Col. 3, lines 66-67 and Col. 4 lines 1-2) to the development of speech recognition software (Col. 4, lines 16-18) and provides the motivation to do so (Col. 1 lines 59-62).

29. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramaswamy, et al, and Meng, et al, as applied to claim 2 above, and further as follows.

a. Ramaswamy, et al, already teach the method of claim 1 upon which claim 2 depends, and further they teach that the data input is revised and that new terms are added

(iterative corpus extraction) to enrich the grammar of the applied field (“Detailed Description”, Col. 4, Lines 8-54).

30. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramaswamy, et al, and Meng, et al, as applied to claim 2 above and further in view of Monaco, Peter C., USPN 6434523 (hereinafter “Monaco”).

d. Ramaswamy, et al, teach an apparatus and method for building domain-specific language models for speech applications. Ramaswamy, et al, do not teach that in doing so, the quality of the reference language model is determined in a user session in which the rules that were applied when generating the grammar (reference language model) specific to the applied field (application domain) are explained.

e. Monaco teaches a visual grammar editing tool in which explanations (grammar specification language objects) are produced (Col. 6 lines 16-21), explaining the rules applied when generating the grammar specific to the applied field (Col. 3 lines 61-66).

f. It would have been obvious to one of ordinary skill in the art to implement the teachings of Monaco into the teachings of Ramaswamy, et al, since Ramaswamy, et al, suggest the benefits of determining the quality of the reference language model (Fig. 2, S6) and since Monaco describes adding a graphical hand review and editing of grammars ((Col. 3, lines 66-67 and Col. 4 lines 1-2) to the development of speech recognition software (Col. 4, lines 16-18) and provides the motivation to do so (Col. 1 lines 59-62)..

H. Other Prior Art

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure regarding multimodal application-specific automatic speech recognition.

- a. Wang, Ye-Yi, USPN 6985852 ("Method and Apparatus for Dynamic Grammars and Focused Semantic Parsing"); Wang, Ye-Yi and Acero, A, ("Grammar Learning for Spoken Language Understanding"), In Proceedings of ASRU Workshop. Madonna di Campiglio, Italy, December 2001; X. Huang et al, "MiPad: A Multimodel Interaction prototype," ICASSP, Salt Lake City, Utah, 2001.
 - b. Wang, Kuansan "A Plan-Based Dialog System With Probabilistic Inferences" ICSLP-2000; Wang, Kuansan, "Implementation of a multimodal dialog system using extended markup languages", In ICSLP-2000, vol.2, 138-141. Beijing, China.
 - c. Wong, C. and Meng, H. "Improvements on a semi-automatic grammar induction framework", 2001 IEEE Workshop on Automatic Speech Recognition and Understanding, ASRU '01.
32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure regarding interactive applications with speech recognition grammar.
- a. Marx, Matthew, et al, USPN 6173266 ("System and method for developing interactive speech applications").
 - b. Carter, J. K. et al USPN 6173266 ("Computer implemented method of constructing interactive speech application...").
 - c. Diedrichs, R. A., et al, USPN 6321198 ("Dialog design system for interactive voice response application, comprises dialog assistant which is controlled from keyboard to connect edited prompts and responses to generate edited compartments of dialog flow").

d. Martin, Paul A, USPN 5642519 ("Speech interpreter with a unified grammar compiler").

I. Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Annette Keller whose telephone number is (571) 270-5276. The examiner can normally be reached on Mon - Thu 7:30 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pankaj Kumar can be reached on (571) 272-3011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pankaj Kumar/
Supervisory Patent Examiner, Art Unit 4192